

REMARKS

Claims 52, 55, 56, 62, 64-66, 69, 70, 76, 78-80, 83, 84, 90, and 92-95 were pending before this amendment. Claims 66, 69-70, 76 and 78-79 have been cancelled. The remaining claims stand rejected under 35 U.S.C. 112, 35 U.S.C. 102 and/or 35 U.S.C. 103. These rejections will be addressed individually below.

In view of the following remarks, Applicants respectfully request reconsideration and withdrawal of all grounds of rejection, and the passage of the above-identified claims to allowance.

I.) Claim Rejections 35 USC § 112

Claims 52, 55-56, 62, 64-66, 69-70, 76, 78-80, 83-84, 90 and 92-95 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Office Action alleges that the disclosure as a whole does not reasonably convey to one skilled in the art that the inventors had possession of the particularly claimed ranges in independent claims 52, 80 and 94-95 that the disinfectant composition flash vaporized so as to leave an essentially dry surface having the anti-microbial agent deposited thereon “within 10 minutes” or “within 5 minutes.”

Applicants respectfully submit that these claimed ranges were explicitly disclosed in the application as originally filed. As indicated in the previous Office Action response, support for the range limitations can be found in the specification (e.g., Example 1, 4, 8, and 9 as well as on page 23, lines 7-26 of the specification as originally filed.). The tables corresponding to these examples clearly show that the surface is completely dry within 5 minutes and that the sterilizing efficacy of the solution at the 5 minute time point is 100%. Moreover, the final three paragraphs of the specification clearly indicate that at five minutes, all the surfaces are left dry. These paragraphs read as follows:

Microbiological results are presented in the Examples 1 to 10. Prior experimentation proved the concentration of 10% of hydrogen peroxide in combination with ethanol (ETOH) to provide a 100% sterilizing efficacy as well as a short evaporation time. The performance of hydrogen peroxide 10% (H₂O₂ 10%) in combination with different alcohols against BG spores on gypsum board pieces was evaluated for various contact time throughout Examples 6 to 10. Positive results were observed for all the alcohols tested (isopropyl alcohol, methanol and propanol all in a concentration of 63,4%) and all the configurations with 5-minute contact time and above presented a 100% sterilizing efficacy. **After 5 minutes of contact time all sample surfaces were left dry.** It is worth noting that after 1 minute of contact time, an average of 96,1% of microorganisms are already eliminated.

The sterilizing efficacy of the hydrogen peroxide/ethanol solution was tested on various surfaces in order to assess its efficacy on different materials Examples 2 and 3. The solution was challenged with MS2 and BG for 60 minutes of contact time. We obtained reduction rates of a 100% for all the samples with the exception of the ceiling tile sample in Example 3 that yielded a 99,86% result.

The selected sterilizing solution (H₂O₂ 10% in ethanol) is a flash-dry biocidal solution with high and fast kill rate. **The said solution combines a 100% sterilizing efficacy against MS2 and BG spores within 5 minutes of contact time with flash-dry properties.**

Hence, Applicants submit that they have sufficient support for the range limitations indicated in the claims.

For at least these reasons, Applicants respectfully request that the 35 U.S.C. §112 rejection be withdrawn.

II.) Claim Rejections 35 USC § 102 (Boch)

Claims 66, 69-70 76 and 78-79 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,104,061 (“Bosch”). This rejection is now moot in light of cancellation of these claims.

III.) Claim Rejections 35 USC § 102 (Kobayashi)

Claims 52, 55-56, 64-65 and 94-95 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,869,440 (“Kobayashi”). The Office Action alleges that every element of the pending claims can be found in Kobayashi.

The present invention is directed to a flash-dry composition. As described in the pending application, a flash-dry composition comprises any (liquid) flash vaporization component which is able to impart to the composition a flash vaporization component, so as to leave an essentially dry surface having an antimicrobial agent deposited thereon. Thus, a spray-on composition that leaves a surface wet or moist for an extended period of time cannot be classified as a flash-dry composition.

Kobayashi discloses mixing two aqueous solutions together for the purpose of peroxide activation. One solution contains hydrogen peroxide while the other solution contains dicyandiamide. The dicyandiamide is used to activate the hydrogen peroxide to make it more effective as a bleaching, sterilizing, cleaning or deodorizing agent. Other components are added to help stabilize the solution or to help solubilize the components of the two solutions. To avoid any stability problems, the two solutions are not mixed until they are ready to be used.

Applicants respectfully submit that Kobayashi does not teach or suggest a flash-dry composition. The Office Action alleges that “Kobayashi discloses a flash-dry disinfectant composition (col. 1, lines 6-11 and col. 2, lines 25-28).” *Office Action* at page 4. However, these sections cited in the Office Action refer to a “bleaching agent” (line 9) or an “aqueous bleaching solution” (line 28). There is no indication that a bleaching solution is tantamount to a flash-dry composition. Generally speaking, a bleaching solution does not fall in the category of a flash-dry composition. In fact, as discussed in more detail below, the compositions disclosed in Kobayashi would not be able to function as flash-dry compositions. Accordingly, Applicants disagree with the Examiner’s characterization of “bleaching agent” or “aqueous bleaching solution.”

The Office Action contends that by selecting amounts of the individual components in the two solutions disclosed in Kobayashi, the presently claimed formulation can be generated. The Examiner proposes a hypothetical example of a solution allegedly disclosed in Kobayashi and argues that the limitations presently claimed have been met. However, as discussed below, the Examiner has mischaracterized Kobayashi and thus, the calculations performed by the Examiner in arriving at the hypothetical formulation were not correctly applied.

Independent claim 52, which currently stands rejected, is directed to a flash-dry composition which comprises three components. One component is a flash vaporization component, which is an alcohol with 1 to 6 carbons. The flash vaporization component is present in the flash-dry composition in a range of 25% to 32% by volume. Dependent claim 56 indicates that the flash vaporization component of claim 52 is ethanol.

Kobayashi discloses that ethanol can be used in one of the solutions which are mixed together to form a “bleaching composition.” The one mention of ethanol occurs in the third paragraph of column 4 of Kobayashi. The relevant passage from this paragraph reads as follows:

Dicyandiamide, the activating agent, has low solubility in water and when a solution of high concentration is prepared, it will problematically precipitate due to supersaturation when it is left standing at low temperature. In order to stabilize the solution at either low or high temperatures, **0 to 20%, preferably 1 to 10%**, of a hydroscopic agent is added. Examples of such a hydroscopic agent include alcohols and polyhydric alcohols such as **ethanol**, tertiary butanol.....

There are several important points regarding this disclosure that were not addressed in the Office Action. First, the ethanol is only present in the second solution of Kobayashi, that is, the solution containing dicyandiamide. The ethanol (or other hydroscopic agent) is added to prevent precipitation of dicyandiamide, which has limited aqueous solubility.

There is no indication or suggestion that ethanol should be added to the solution containing hydrogen peroxide, which is subsequently mixed with the first solution containing dicyandiamide. Thus, assuming the dicyandiamide solution did contain ethanol in the range indicated in the specification (0 to 20% by weight), when the dicyandiamide solution is mixed with the hydrogen peroxide aqueous solution, the volume % of ethanol will be necessarily reduced as the dicyandiamide solution is diluted. The volume % of ethanol would thereby be lower than the amount indicated in the specification of Kobayashi, which refers only to the solution containing dicyandiamide. Even if one assumes that Kobayashi added the maximum amount of ethanol as indicated in the specification, the weight % of ethanol would be less than 20% following dilution. Based on the preferred ranges disclosed in Kobayashi, the weight % of ethanol would be less than 10% following dilution.

Second, the amount of ethanol added to the dicyandiamide solution, according to Kobayashi, is between 0 and 20%, preferably 1 to 10%, by weight. Even assuming that the upper range of 20% by weight ethanol is chosen, which corresponds to 25.3% ethanol by volume, the presently claimed limitation of 32%-85% flash vaporization component (e.g. ethanol) has not been met. Moreover, as discussed in the preceding paragraph, the 25.3% ethanol assumes that no hydrogen peroxide is present in the solution. Obviously, being that hydrogen peroxide is the essential component of Kobayashi's bleaching solutions, this is an unwarranted assumption. It is noted that all of the explicit examples provided in Kobayashi are mixed in a 1:1 ratio of hydrogen peroxide solution and dicyandiamide solution. Assuming a 1:1 ratio, the maximum amount of ethanol disclosed in Kobayashi's bleaching solutions would be 12.15% by weight (15.4% by volume), which is even further removed from the 32%-85% (by volume) flash vaporization component, as presently claimed.

When making up a hypothetical solution, the Examiner chose to use 50% by weight of ethanol as a basis for calculation. Here , the examiner is relying on Column 4, lines 45-47 from Kobayashi, which reads as follows:

These additives are added in an amount of 0 to 60 wt %, preferably 1 to 40 wt %.

However, it is clear that the phrase “these additives” is not referring to the hydrotropic agent (e.g. ethanol) but rather to “**detergent additives such as urea.**” *See Kobayashi*, lines 45-46. In fact, as discussed above, Kobayashi clearly sets an upper limit on the amount of hydrotropic agent in the dicyandiamide solution, which is **20%**. Hence, the 50% ethanol by weight, as chosen by the Examiner, is not disclosed or suggested in Kobayashi. Moreover, as already addressed, in making the calculations, the Examiner did not consider that the two solutions are being combined, thus even lowering the percentage of ethanol in the solution.

The Office Action further contends that since compositions in Kobayashi are physically the same as those presently claimed, they will have the same properties. Thus. According to the Examiner, “Kobayashi’s composition to inanimate surfaces is, it is capable of drying within 10 minutes leaving an essentially dry surface having the anti-microbial agent deposited thereon.” *Office Action* at page 5. However, because Kobayashi’s composition must have an ethanol content of under 25% by volume, it would not be able to function as a flash-dry composition. As discussed in previous Office Action responses, the lower alcohol percentage would render such a composition unusable as a flash-dry composition. Accordingly, there is no inherent disclosure of a flash-dry composition in Kobayashi, as the Examiner suggests.

It is respectfully pointed out that a two-prong inquiry must be satisfied in order for a Section 102 rejection to stand. First, the prior art reference must contain all of the elements of the claimed invention. *See Lewmar Marine Inc. v. Barient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Second, the prior art must contain an enabling disclosure. *See Chester v. Miller*, 15 U.S.P.Q.2d 1333, 1336 (Fed. Cir. 1990). A reference contains an enabling disclosure if a person of ordinary skill in the art could have combined the description of the invention in the prior art reference with his own knowledge of the art to have placed himself in possession of the invention. *See In re Donohue*, 226, U.S.P.Q. 619, 621 (Fed. Cir. 1985).

Applying the law to the instant facts, the reference relied upon by the Office Action does not disclose, suggest or enable Applicants' invention. As indicated above, Kobayashi clearly does not disclose a flash-dry composition or a composition with 32% - 85% alcohol (C1-C6) by weight.

For at least these reasons, Applicants respectfully request that the 35 U.S.C. §102 rejection be withdrawn.

IV.) Claim Rejections 35 USC § 103

Claims 80, 83-84, 90 and 92 stand rejected over Kobayashi in view of EP 0 842 605A1 ("Petri"). The Examiner applies Kobayashi in the same manner as in the Section 102 rejection discussed above. However, the Examiner indicates that Kobayashi does not teach spraying his composition in aerosol form nor does Kobayashi teach the time limitation of within 10 minutes as indicated in independent claim 80. The Examiner allegedly arrives at the currently claimed invention by combining Kobayashi with Petri. According to the Office Action, Petri discloses a disinfectant composition containing hydrogen peroxide, ethanol and water where no visible residues are left on the surface. Moreover, the Office Action states that Petri dispenses his composition in aerosol form.

For reasons already addressed in the previous section, Applicants submit that the Kobayashi reference is incorrectly applied. Kobayashi does not teach or suggest a flash-dry composition. Kobayashi does not teach an alcohol (C1-C6) concentration of 32% - 85% by volume. Kobayashi does not teach a composition that leaves a surface essentially dry having the antimicrobial agent deposited thereon within 10 minutes. Additionally, as indicated in the Office Action, Kobayashi does not teach an aerosol. Hence, at least four limitations of the rejected claims are not disclosed or suggested in Kobayashi.

Petri was addressed at length in the previous Office Action Response. Petri clearly states that the optional solvent can be present within the composition “at a level up to 10% by weight, preferably from 2% to 7% by weight of the composition.” *See Petri* at Page 29, lines 25-26. Thus, Petri does not teach an alcohol (C1-C6) concentration of 32% - 85% by volume. Petri does not teach a composition that leaves a surface essentially dry having the antimicrobial agent deposited thereon within 10 minutes. Additionally, Petri does not teach a flash-dry composition.

When taken together, Kobayashi and Petri do not teach or suggest the claim limitations of independent claim 80. Thus, the Examiner has not established a *prima facie* case of obviousness (see MPEP 2143).

For at least these reasons, Applicants respectfully request that the 35 U.S.C. §103 rejection be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration, withdrawal of rejections, and allowance of all claims is earnestly solicited.

The Commissioner is authorized to charge any required fees, including any extension and/or excess claim fees, any additional fees, or credit any overpayment to Goodwin Procter LLP Deposit Account No. 06-0923.

Respectfully submitted for Applicants,

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Date: April 4, 2008

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